

IN THE CLAIMS

Please cancel claims 1-3, 9-12 and 14-15 without prejudice; amend original claims 4-8, 13 and 16-21; and add new independent claims 22-24 all as shown below in a complete listing of the claims.

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The method according to Claim 3 22

*Q1 cont.*  
further comprising:

~~characterized in that~~

limiting the pressure of the control volume ~~is limited~~, and emptying, when an upper pressure level is reached, the control volume ~~is emptied~~ until a low closing pressure has been established.

*Sub c1*  
5. (Currently Amended) The method according to Claim 3 22 further comprising:

~~characterized in that~~

venting or emptying the control volume ~~is vented or emptied~~ via by way of a switching valve which is actuated by pressure switch means, and

determining then a leak flow rate ~~is determined~~ as a function of the closing time, the pressure in the control volume and the state equations of the working medium.

6. (Currently Amended) The method according to Claim 4 further comprising:

~~characterized in that~~

recording an upper pressure level and a low closing pressure ~~are recorded~~ by pressure switches or by a pressure sensor, and

determining then a leak flow rate ~~is determined~~ as a function of the closing time, the pressure in the control volume and the state equations of the working medium.

7. (Currently Amended) The method according to claim 5

10/021,951

further comprising:

~~characterized in that~~

driving the switching valve is driven by means of a control programme in such a way that when a test cycle is initiated, the individual steps of the test cycle take place automatically.

8. (Currently Amended) The method according to claim 7 wherein

~~characterized in that~~

the test cycle comprises: ~~includes the following steps:~~

- opening the switching valve and venting the control volume,
- closing the control volume and starting the control time,
- determining a pressure rise by recording the control volume pressure over time, and
- evaluating and generating a message or an alarm in the event of predetermined pressure rise values being exceeded.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Currently Amended) The device according to Claim 12

24,

~~characterized in that~~

wherein when the control volume is vented or emptied by said flow resistance, a further pressure sensor (Pn) is arranged downstream of the filter (60), and to determine the degree of soiling the differential pressure between the pressure in the control volume (30) and the pressure downstream of the filter (60) is formed or measured, it being possible, if appropriate, to generate a command and/or a signal to change the filter.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) The device according to Claim 15

~~characterized in that~~

wherein when the switching valve is actuated by means of said pressure-relief valve the switching valve (V1) can be driven by means of an evaluation unit (40) or a position regulator (41).

17. (Currently Amended) The device according to claim ~~15~~ 24,

~~characterized in that~~

wherein when the switching valve is actuated by means of said pressure-relief valve the switching valve (V1) is a directional control valve.

18. (Currently Amended) The device according to Claim ~~15~~ 24,

~~characterized in that~~

wherein when the switching valve is actuated by means of said pressure-relief valve the switching valve (V1) is a 2/2 directional control valve.

19. (Currently Amended) The device according to claim ~~10~~ 24,

~~characterized in that~~

wherein the control volume (30) can be vented into a closed or closeable volume.

20. (Currently Amended) The device according to claim ~~10~~ 24,

~~characterized in that~~

when suitable leak flow rate limit values are reached, a command and/or a signal to change the valve-rod seal can be generated automatically.

21. (Currently Amended) The device of claim ~~10~~ 24 wherein said process valve can be monitored remotely.

22. (New) A method for determining at the seal of a valve or a valve rod leaks of a working medium being controlled by said valve, comprising:

determining the pressure of the leaking medium controlled by the valve, if appropriate as a function of time, in a

10/021,951

control volume between a first valve-rod seal and a second valve-rod seal;

using the determined pressure to calculate the leak flow rate;

using the value obtained for the leak flow rate to draw conclusions as to whether the seal is sealed, and in this way a seal replacement time is determined; and

measuring, after the control volume is discontinuously opened or emptied and then closed again, the pressure rise of the leaking working medium controlled by the valve in the control volume.

23. (New) A method for determining leaks at the seal of a valve or a valve rod, comprising:

determining the pressure, if appropriate as a function of time, in a control volume between a first valve-rod seal and a second valve-rod seal;

using the determined pressure to calculate the leak flow rate, venting the control volume by way of a flow resistance, upstream of which there is a particle filter;

measuring the differential pressure between the control volume pressure and the pressure downstream of the flow resistance; and

determining the degree of soiling of the filter from the measured differential pressure.

24. (New) A device for determining leaks at the seal of a valve or a valve rod comprising:

a control volume designed between a first valve-rod seal and a second valve-rod seal of said valve or valve rod;

at least one pressure sensor and/or pressure switch for monitoring the pressure of said control volume;

an evaluation unit or a position regulator connected to said control volume for determining a leak flow rate in said control volume; and

a flow resistance having a filter connected upstream of the flow resistance or a switching valve for venting or emptying

10/021,951

said control volume, said switching valve actuatable by means of  
either a pressure-relief valve or a pressure switch.

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End  
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